

Behavior Analysis, Mentalism, and the Path to Social Justice

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Traditional psychology is mentalistic in the sense that it appeals to inner causes in the explanation of behavior. Two examples of mentalism in traditional psychology are (a) dispositional attributions and (b) conventional treatments of intelligence. These examples may be linked to such pernicious social -isms as racism and sexism by noting that some individuals justify engaging in discriminatory conduct toward others by appealing to some deficient inner quality of those being discriminated against. This sort of mentalistic appeal ultimately prevents some members of our society from being integrated into society and from progressing down the path of social justice. Behavior analysis offers a constructional alternative to the mentalistic views of traditional psychology and allows our society as a whole to move down the path.

Key words: mentalism, dispositional attributions, intelligence, racism, sexism, social justice

Day (1976) outlined three propositions in terms of which he defined the radical behaviorist outlook. The first is a focal interest in the contingencies involved in the control of behavior. The second is an opposition to mentalism. The third is social activism. This third proposition

involves at heart a particular conviction with respect to social planning, namely, that if we are to survive as a species we should begin at once to restructure our social environment, in a piecemeal fashion, so that it acts to produce people who have the behavioral equipment necessary for us all to survive. (p. 535)

Certainly the first concern—the analysis of contingencies—is vitally important to all behavior analysts. However, the second and third concerns—the opposition to mentalism and the social activism aimed at investing citizens with the behavioral skills necessary for everyone's survival—are just as important, and they are the particular focus of this article.

On occasion some have said they do not see what is wrong with mentalism,

as long as the terms of a mental or cognitive orientation can be operationally defined and thereby regarded as theoretical and objective. They may even argue that mentalisms are useful because they have a heuristic contribution, such as by suggesting novel ways of conceptualizing problems.

The perspective of this article is that there are many things wrong with mentalism, notwithstanding exculpatory appeals to operational definitions, theoretical dimensions, or heuristics. The problems created by mentalism ultimately have to do with Day's third concern about social activism and saving the world through behavior analysis. Let us begin an analysis of these problems by defining our terms.

MENTALISM

Defining Mentalism

In general terms, *mentalism* may be defined as an approach to the study of behavior which assumes that a mental or "inner" dimension exists that differs from a behavioral dimension. This dimension is ordinarily referred to in terms of its neural, psychic, spiritual, subjective, conceptual, or hypothetical properties. Mentalism further assumes that phenomena in this dimension either directly cause or at least mediate some forms of behavior, if not all.

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These phenomena are typically designated as some sort of act, state, mechanism, process, or entity that is causal in the sense of initiating or originating. Mentalism regards concerns about the origin of these phenomena as incidental at best. Finally, mentalism holds that an adequate causal explanation of behavior must appeal directly to the efficacy of these mental phenomena. A causal explanation that does not appeal to these phenomena, and appeals to only present or past behavioral, physiological, and environmental variables, is necessarily limited in scope and adequacy. It therefore cannot be seriously entertained by anyone interested in a complete explanation of behavior.

In some instances mentalism takes the form of the formal, explicit bifurcation of the world into the two exhaustive and mutually exclusive ontological dimensions of the mental and the physical, or the mind and body. Classical psychophysical dualism of the sort proposed by traditional philosophers is an example of this sort of mentalism.

In other instances mentalism takes the form of an "epistemological dualism." Epistemological dualism is the assumption that two dimensions are inherent in the knower rather than the known. Epistemological dualism starts with the view that words or terms are symbols that are created in the immediate experience of the knower. The mentalism consists in the stances that (a) the immediate experience is a mental (or equivalently, subjective) dimension that differs from the physical and (b) knowledge is an outgrowth of processes in which knowers create and manipulate symbols for physical objects in their immediate experience. Epistemological dualism is particularly conspicuous when scientists seek to explain scientific activity in terms of the supposedly unique epistemological powers of theories, logic, and constructs. Sometimes psychologists who appeal to the unique epistemological powers of theories, logic, and constructs believe they are not being men-

talistic because they are not bifurcating objects from the world into physical and extraphysical components. However, this belief is in error, because the way that these psychologists conceive of the processes by which scientists become knowledgeable makes these psychologists epistemological dualists and therefore mentalistic (for further discussion of mentalism and epistemological dualism in scientific behavior, see also Moore, 1999, 2000; Smith, 1986, pp. 116 ff.). Readers may note that Skinner (1945) addressed this problem many years ago when he stated that conventional operationism

has not developed a satisfactory formulation of the effective verbal behavior of the scientist. . . . Modern logic, as a formalization of "real" languages, retains and extends this dualistic theory of meaning and can scarcely be appealed to by the psychologist who recognizes his own responsibility in giving an account of verbal behavior. . . . If it turns out that our final view of verbal behavior invalidates our scientific structure from the point of view of logic and truth-value, then so much the worse for logic, which will also have been embraced by our analysis. (pp. 270, 271, 277)

By this definition, the positions of most of the distinguished figures in Western intellectual history who have had something to say about psychology—Descartes, Kant, Freud, Piaget, and others—are mentalistic in one way or another. In addition, a large portion of contemporary psychology is mentalistic: cognitive psychology certainly and un-self-consciously, but also much of personality theory, social psychology, developmental psychology, sensation-perception, neuroscience, cognitive neuroscience, the medical model of psychopathology, and ironically even mediational S-O-R neobehaviorism. Indeed, a reasonable argument is that one gets famous in contemporary psychology by thinking up new mentalisms and calling them theories, given the commitment to epistemological dualism if not classical psychophysical dualism.

Sources of Mentalism

As we have defined mentalism above, it is encountered as a particular

way of explaining behavior, and an explanation is verbal behavior. Verbal behavior is operant behavior, and as behavior analysts we analyze it in terms of the contingencies that promote it. Even mentalistic verbal behavior may be so analyzed. Mentalistic verbal behavior is often thought to be of concern because it purports to refer to entities that exist in another dimension and that cannot directly be part of a respectable scientific explanation because they are not publicly observable. However, there is no such other dimension, and there are no such entities to which the verbal behavior in question supposedly refers. Therefore, mentalistic verbal behavior cannot be of concern because it literally refers to another dimension or supposed entities in another dimension. On the present view, all verbal behavior, even that which is called mentalistic, is a function of naturalistic factors and processes that exist in space and time, in the physical and material dimension. Thus, mentalistic verbal behavior is of concern because of the factors that cause it and its consequences. The task is to identify those factors and their consequences.

Consider the following two passages from Skinner's writing, in which he outlined those factors and consequences. Here is the first passage:

Turning from observed behavior to a fanciful inner world continues unabated. Sometimes it is little more than a linguistic practice. We tend to make nouns of adjectives and verbs and must then find a place for the things the nouns are said to represent. We say that a rope is strong, and before long we are speaking of its strength. We call a particular kind of strength tensile, and then explain that the rope is strong because it possesses tensile strength. The mistake is less obvious but more troublesome when matters are more complex. There is no harm in saying that a fluid possesses viscosity, or in measuring and comparing different fluids or the same fluid at different temperatures on some convenient scale. But what does viscosity mean? A sticky stuff prepared to trap birds was once made from viscus, Latin for mistletoe. The term came to mean "having a ropy or glutinous consistency," and viscosity "the state or quality of being ropy or glutinous." The term is useful in referring to a characteristic of a fluid, but it is nevertheless a mistake to say that a fluid flows slowly because

it is viscous or possesses a high viscosity. A state or quality inferred from the behavior of a fluid begins to be taken as a cause.

Consider now a behavioral parallel. When a person has been subjected to mildly punishing consequences in walking on a slippery surface, he may walk in a manner we describe as cautious. It is then easy to say that he walks with caution or that he shows caution. There is no harm in this until we begin to say that the walks carefully because of his caution. . . .

The extraordinary appeal of inner causes and the accompanying neglect of environmental histories and current setting must be due to more than a linguistic practice. I suggest that it has the appeal of the arcane, the occult, the hermitic, the magical—those mysteries which have held so important a position in the history of human thought. It is the appeal of an apparently inexplicable power, in a world which seems to lie beyond the senses and the reach of reason. (Skinner, 1974, pp. 165–166, 169)

Here is the second passage:

We almost instinctively look inside a system to see how it works. We do this with clocks, as with living systems. Some early efforts to understand and explain behavior in this way have been described by Onians in his classic *Origins of European Thought*. It must have been the slaughterhouse and the battlefield that gave man his first knowledge of anatomy and physiology. The various functions assigned to parts of the organism were not usually those that had been observed introspectively. . . . Observation of a behaving system from within began in earnest with the discovery of reflexes. . . .

We have not advanced more rapidly to the methods and instruments needed in the study of behavior precisely because of the diverting preoccupation with a supposed or real inner life. . . .

It is easier to make the point in the field of medicine. Until the present century very little was known about bodily practices in health and disease from which useful therapeutic practices could be derived. Yet it should have been worthwhile to call in a physician. Physicians saw many ill people and should have acquired a kind of wisdom, unanalyzed perhaps but still of value in prescribing simple treatments. The history of medicine, however, is largely the history of barbaric practices—bloodlettings, cuppings, poultices, purgations, violent emetics—which much of the time must have been harmful. My point is that these measures were not suggested by the intuitive wisdom acquired from familiarity with illness; they were suggested by theories, theories about what was going on inside the ill person. Theories of mind have had a similar effect, less dramatic, perhaps, but quite possibly far more damaging. . . . But philosophy and psychology have had their bleedings, cuppings, and purgations too, and they have obscured simple wisdom. They have diverted wise people from a path that would have led more directly to an

eventual science of behavior. . . . We have been misled by the almost instinctive tendency to look inside any system to see how it works, a tendency doubly powerful in the case of behavior because of the apparent inside information supplied by feelings and introspectively observed states. Our only recourse is to leave that subject to the physiologist, who has, or will have, the only appropriate instruments or methods. (Skinner, 1978, pp. 73–74, 77, 81)

On the basis of such treatments, therefore, mentalism may be understood as a function of our conventional linguistic practices, embedded in a matrix of underlying cultural assumptions. Ultimately, mentalistic explanations are supported by the social reinforcement inherent in conceiving of the causes of behavior in culturally approved ways. Mentalism may therefore be regarded as the dominant orientation in our society, as evidenced in our general cultural outlook, our system of jurisprudence, most organized religions, and other social institutions (see also Moore, 1981, 1990, for further treatment of this entire matter).

Analysis

To be sure, in some instances mentalistic positions may appear to explain events successfully. The extent to which they appear to do so is because they take contingencies into account, if only indirectly and implicitly, even though mentalistic positions generally minimize any interest in environmental factors and relations as explanatory. The point is simply that mentalistic positions would be even more scientifically successful if they took contingencies into account directly and explicitly.

From another perspective, mentalism entails many negative consequences, which more than offset any ostensible contributions. In brief, mentalistic statements are troublesome because they (a) are incomplete and vague, (b) obscure important details, (c) allay curiosity by getting us to accept fictitious way stations as explanatory, (d) impede the search for relevant environmental variables, (e) misrepresent the facts to be accounted for, (f) misrepresent the processes involved when a

scientist becomes knowledgeable, (g) falsely assure us about the state of our knowledge, and (h) lead to the continued use of scientific techniques that should be abandoned (e.g., hypothetico-deductive theory testing), for example, because they are wasteful.

In the final analysis, mentalism is objectionable because it is distinctly unpragmatic. That is, people's mentalistic statements about the causes of behavior are incorrect because their verbal behavior is under the control of factors that are cherished for irrelevant and extraneous reasons. These incorrect statements then interfere with the explanation of behavior in terms of contingencies at the level of phylogeny, ontogeny, and the culture. Ultimately, as Skinner (1974) put it, "we must remember that mentalistic explanations explain nothing" (p. 230).

A further unfortunate consequence of a pervasive mentalism is that the full power of a science of behavior is not brought to bear on the human condition. In particular, the power of a science of behavior is not brought to bear on social problems, and our culture will not be able to move down the path of social justice and ensure that all citizens are well educated, integrated into the mainstream, and provided with the behavioral equipment that is necessary for us all to survive, precisely because of mentalism. Let us now look at two specific examples of mentalism to see how and why it is so problematic.

ATTRIBUTION THEORY

The Traditional View

The first example is attribution theory. As rendered in traditional psychology, attribution theory is an aspect of "person perception" and "social cognition." It is related to the work of Heider (1958), who proposed that people attribute observed behavior to either an internal (i.e., a personal factor) or an external (i.e., a situational factor) cause, but not both. Examples of internal causes are such entities as traits, attitudes, intelligence, expectancies,

and cognitions. When one appeals to such internal causes in an explanation of behavior, one is said to make a dispositional attribution. Examples of external causes are environmental or social demands. When one appeals to such external causes, one is said to make a situational attribution.

A currently influential version of attribution theory is derived from the work of Kelley (1967). Although Kelley did not frame the matter in exactly the following terms, his approach is that individuals implicitly seek answers to certain questions as they attempt to make dispositional or situational attributions. The first question concerns consistency: Does the observed person act in the same way in the same situation? The second question concerns distinctiveness: Does the observed person act in a similar way in a similar situation? The third question concerns consensus: Are others acting in the same way in the observed situation? Given one set of answers to these questions, Kelley argued that we tend to make a dispositional attribution. Given another set of answers, we tend to make a situational attribution. Once we have started to favor one kind of attribution, we then discount the other possibility. Traditional researchers have further noted that there is a strong bias in our culture toward making dispositional attributions, which on a behavior-analytic view is not surprising given the prevalence of mentalism. Traditional researchers call this bias the "fundamental attribution error."

Related to the fundamental attribution error is the "consistency paradox." That is, if the notion of a dispositional attribution is at all valid, it implies that the disposition is a more or less permanent part of a person's psychological make-up and is presumably always present to cause the person to behave in more or less the same way across time and place. Therefore, to make a dispositional attribution is to imply that a person's behavior should be reasonably consistent across time and place. At issue is whether behavior is actually con-

sistent enough across time and place to justify the great frequency with which people tend to make dispositional attributions. In other words, given that people make N dispositional attributions (where N is very large), is behavior actually consistent enough to justify N attributions, or should people be making fewer than N ? It turns out that the evidence suggests that behavior is not really consistent enough, yet people paradoxically persist in making N dispositional attributions, despite the negative evidence. Many traditional social psychologists and personality theorists spend a great deal of time seeking to resolve this paradox and understand why people persist in making a large number of dispositional attributions (see Bem & Allen, 1974; Mischel, 1999, pp. 428–429). Unfortunately, it is not clear that traditional researchers spend a comparable period of time discussing whether any inner cause in the sense of a dispositional attribution in fact exists, and should ever be invoked as an explanation of behavior. In other words, from a behavior-analytic view N should always be zero. That N is greater than zero is understandable as an illustration of the power of mentalism in our culture. When N is greater than zero, behavior analysts argue that the verbal behavior purportedly explaining the observed behavior of another person is under the control of mentalistic preconceptions that interfere with an effective naturalistic explanation of the behavior in question.

Implications of the Traditional View

There is a further point about dispositional attributions that is important. This point is that disparaging dispositional attributions about certain classes of people tend to become a license or justification for treating those people differently based on the supposed inner entities that are taken to cause their behavior. In short, disparaging dispositional attributions become a way of excluding people from society rather than integrating them into society, and tra-

ditional psychology contributes to this problem when it legitimizes such mentalisms as dispositional attributions. Indeed, from a behavior-analytic perspective this process is at the heart of such pernicious social -isms as racism and sexism.

To see how dispositional attributions are related to the pernicious social -isms, let us now consider the following scenario:

1. The members of Group A regard as normative their own characteristics and behavior (e.g., skin color, hair style, gender, age, place of residence, ethnic heritage, social customs and conventions, sexual orientation, facial features, language, religion).

2. The members of Group A then regard themselves to be superior to, not just different from, another group (Group B) whose characteristics and behavior differ.

3. The members of Group A then make disparaging dispositional attributions about the behavior of members of Group B.

4. The members of Group A infer that the disparaging attributions accurately reflect an inferior underlying psychological reality of Group B.

5. The members of Group A assume that this inferred and inferior underlying reality is immutable because it is mental, and that its expression in the behavior of Group B cannot be prevented or modified, so why even try.

6. Finally, the members of Group A invoke the disparaging dispositional attributions as justification for engaging in discriminatory actions with respect to members of Group B, such as denying reinforcers or delivering punishing or aversive stimuli.

In sum, the discriminatory actions may be seen as a function of the social reinforcement within Group A that maintains the behavior that controls the delivery of consequences to Group B. If one wants to use the term *power* in this sort of analysis, the term is presumably occasioned by the control over the contingencies.

Countercontrol

Further analysis suggests that groups being disparaged sometimes try to exert countercontrol in either or both of two ways. One is that they may argue that their mental causes really are good enough, and that they should not be disparaged. A second way is that they make equally uncomplimentary dispositional attributions about the disparagers. Both arguments are regrettable because they concede the premise. Question is never raised as to why make the dispositional attributions about the causes of anyone's behavior, disparaging or not. Ironically, although traditional psychologists may caution against the fundamental attribution error in our culture, Hineline (1990, p. 311) has noted that the error is itself an example of the fundamental attribution error.

In any case, society does not seem likely to follow the path to social justice if it follows the practices of traditional psychology and uncritically legitimizes dispositional attributions about broad classes of people. Indeed, the whole history of social oppression follows the making of disparaging dispositional attributions about other groups. Surely the Holocaust is sufficient illustration.

Behavior Analysis As a Constructional Alternative

Not surprisingly, behavior analysts approach this problem entirely differently. Indeed, as Skinner (1974) put it when talking about the uselessness of inner causes, "This kind of thing has been going on for centuries. It is surprising that so many intelligent people refuse to ask what is wrong" (p. 170). On a behavior-analytic view, dispositional attributions certainly do not identify genuine inner or mental causes of behavior because there are literally no inner or mental causes to be identified. Rather, dispositional attributions are another type of fanciful explanatory fiction, serving as a contiguous cause. Those who make dispositional

attributions are conforming to traditional modes of explanation by virtue of the social reinforcement for acting in accord with mentalistic cultural expectations. People whose behavior is being described in terms of a dispositional attribution are simply responding to their environment. However, attribution theory does a very poor job of specifying the contingencies that generate the responding with which the attribution is concerned. Repertoires may well be organized, and some stimuli or classes of stimuli may be related to others in a way called "structural," but there are no inner causes in the sense of dispositional attributions. Similarly, some individuals may have been exposed to contingencies that have promoted inadequate repertoires, but this does not mean their inadequate behavior is caused by an entity from an inner dimension. As Hineline (1990) discussed, an analysis of contingencies would put the matter in good order. Indeed, Goldiamond (1975) pointed out that constructional therapeutic or rehabilitative interventions are most effectively based on explicit knowledge of underlying contingencies.

INTELLIGENCE

Let us now consider a second example of mentalism that is problematic in traditional psychology: the conventional conception of intelligence.

The Traditional View

On the traditional view, following in important respects from certain notions relating to evolution, individual differences, and population genetics in the late 1800s, intelligence is taken to be one of the naturally occurring characteristics of a population. It is regarded as a mental characteristic rather than a physical or morphological characteristic like height or weight. As another naturally occurring characteristic of a population, it is presumed to be normally distributed across the members of the population.

This conception is reflected in many

of society's practices. For example, consider common teaching practices. Many hold that exposure to a subject matter builds general intelligence by giving particular kinds of experiences only indirectly and imperfectly reflected in repertoires. Grades should be assigned according to a normal curve because intelligence is thought to be distributed according to a normal curve, and grades should follow to some approximation from the amount of "intelligence" that students possess (Moore, 2001).

Readers familiar with the history of intelligence testing may recall that early in the first decade of the 20th century, the French government commissioned Alfred Binet and Theophile Simon to develop an objective diagnostic test that would identify children who were unable to profit by the standard form of instruction in the public schools, and who should be taught in special schools where they would receive remedial instruction. The test was reasonably successful, and the basic form of Binet's test was imported to the U.S. and modified in the second decade of the 20th century by various figures of the time. One of the most influential was Lewis Terman of Stanford University, who developed the version we now refer to as the Stanford-Binet test. In the U.S., the principal use of such mental tests was in the school system. However, two other interrelated uses emerged. One was to test Army recruits during the mobilization brought about by World War I. The stated aim was to make the Army more efficient by assigning those possessing a high amount of intelligence to technically demanding jobs or as officers and those possessing a low amount of intelligence to menial jobs. Lewis Terman, Carl Brigham, and Robert Means Yerkes were three psychologists who worked on this project. A second use was to screen immigrants to determine whether they were "feeble minded." The stated aim was to ensure that the mental stock of the U.S. population was not reduced by allow-

ing mentally defective individuals to enter the country. This aim resulted in the Immigration Restriction Act of 1924 and revitalization of the eugenics movement.

Group Differences in Intelligence

Analysis of the literature of the time reveals a fair amount of blatant prejudice and racism based on the prevailing mentalistic views of intelligence. For example, Brigham (1923) sought to evaluate the scores of various ethnic groups making up the U.S. population as revealed in the data of the Army testing program, so that immigration policy could be readjusted:

We may consider that the population of the United States is made up of four racial elements, the Nordic, Alpine, and Mediterranean races of Europe, and the negro. If these four types blend in the future into one general American type, then it is a foregone conclusion that this future blended American will be less intelligent than the present native born American, for the general results of the admixture of higher and lower orders of intelligence must inevitably be a mean between the two. . . . Our own data from the army tests indicate clearly the intellectual superiority of the Nordic race group. This superiority is confirmed by observation of this race in history. The Alpine race, according to our figures, which are supported by historical evidence, seems to be considerably below the Nordic race intellectually. . . . Our data on the Alpine Slav show that he is intellectually inferior to the Nordic, and every indication would point to a lowering of the average intelligence of the Nordic if crossed with the Alpine Slav. . . . We must now frankly admit the undesirable results which would ensue from a cross between the Nordic in this country with the Alpine Slav, with the degenerated hybrid Mediterranean, or with the negro, or from the promiscuous intermingling of all four types. . . . We must face a possibility of racial admixture here that is infinitely worse than that faced by any European country today, for we are incorporating the negro into our racial stock, while all of Europe is comparatively free from this taint. . . . According to all evidence available, then, American intelligence is declining, and will proceed with an accelerating rate as the racial admixture becomes more and more extensive. The decline of American intelligence will be more rapid than the decline of the intelligence of European national groups, owing to the presence here of the negro. . . . The steps that should be taken here to preserve or increase our present intellectual capacity must of course be dictated by science and not by political expedi-

ency. Immigration should not only be restrictive but highly selective. (pp. 205-210)

In another passage, Brigham (1923) cites approvingly the previous work of Madison Grant, a New York lawyer with no particular expertise in psychological testing:

In regard to the Irish, Mr. Madison Grant says: . . . [Ireland] "has more than its share of generalized and low types surviving in the living populations, and these types . . . have imparted a distinct and very undesirable aspect to a large portion of the inhabitants of the west and south and have greatly lowered the intellectual status of the population as a whole. The cross between these elements and the Nordic appears to be a bad one, and the mental and cultural traits of the aborigines have proved to be exceedingly persistent and appear especially in the unstable temperament and the lack of coordinating and reasoning power, so often found among the Irish." (pp. 184-185)

We previously noted that one of the leading figures in the testing movement was Robert Means Yerkes, a specialist in comparative animal learning and perhaps the godfather of the cognitive animal learning movement. Consider now the following remarks from Yerkes (1923), who also sought to promote the practical success of the Army testing program in identifying ethnic differences:

The intellectual status of the negro is greatly inferior to that of the white, and the figures already presented as typical are supported by measurements of the practical value of the negro soldier and by opinions of commanding officers, who agree that he lacks initiative, displays little leadership, and cannot safely accept responsibility.

Almost as great as the intellectual difference between negro and white in the army are the differences between white racial groups.

Of natives of England serving in the United States Army only 8.7 per cent graded D or lower in intelligence; of natives of Poland, 69.9 per cent. In the English group, 19.7 per cent graded A or B, and in the Polish group, one half of one per cent. The race differences are so pronounced, and of such obvious practical significance in connection with immigration, that it seems excusable to present the rank order of the several racial groups. (p. 364)

To be sure, eventually Brigham (1930) distanced himself from his earlier analysis:

That study, with its entire superstructure of racial differences, collapses entirely. . . . This re-

view has summarized some of the more recent test findings which show that comparative studies of various national and racial groups may not be made with existing tests, and which show, in particular, that one of the most pretentious of these comparative racial studies—the writer's own—was without foundation. (pp. 164, 165)

However, Brigham did so more on the basis of what he decided was an inadequate methodology than on the rejection of an ideology derived from mentalistic assumptions about intelligence. Unfortunately, the damage had been done. Again, a stereotyped mentalistic concern with inner causes had taken a tragic toll on citizens.

Gender Differences in Intelligence

An equally common practice is to apply certain concepts of intelligence to supposed gender differences between men and women. Of course, this argument is just one aspect of the larger issue, namely, the supposed genetic or biological basis of intelligence. In this regard, let us consider the early approach of Hippocrates to personality theory. Hippocrates talked in terms of a balance among the four "humors": blood, phlegm, black bile, and yellow bile. Are we to assume by virtue of this approach that women, because of their menstrual periods, must be routinely out of intellectual balance through blood loss? Are we to assume that women must therefore be emotionally unstable and constitutionally incapable of being intellectually rigorous? Are we to distrust all women to perform an intellectually demanding job, instead always selecting any man and paying him more because he is not so periodically "disadvantaged" and is always on an even emotional keel? To so view men and women is the height of mentalism, and to be a behavior analyst is to be opposed to mentalism.

Shields (1982) describes another case of a pernicious mentalism, also related to gender. In the late 19th century, many scientists adopted a set of beliefs known as the "variability hypothesis." According to this hypothesis, males were more variable in their men-

tal as well as physical characteristics than were females. Thus, the distribution of characteristics for males would be flatter, with a greater number at the high and low extremes but fewer in the center of the distribution, than that for females. The implication was that the percentage and number of smart males was higher than that of smart females, and so it should not be surprising that more males than females were in positions that demand intelligence. The differences between males and females were presumed to be inherent, which is to say biologically based. Consequently, a biological model of intellectual heritage rose to prominence, and many luminaries of the time subscribed to this model. Darwin himself had regarded males as intellectually superior to females—more courageous, pugnacious, and energetic, with a more inventive genius, and possessing more qualities that were necessary in the struggle for life (Shields, 1982, p. 772). Thorndike suggested that the educational system should channel women into fields in which only modest levels of ability were necessary:

Not only the probability and the desirability of marriage and the training of children as an essential feature of a woman's career, but also the restriction of women to the mediocre grades of ability and achievement should be reckoned with by our educational systems. The education of women for . . . professions . . . where a very few gifted individuals are what society requires, is far less needed than for such professions as nursing, teaching, medicine, or architecture, where [only] the average level is essential. (as cited in Shields, 1982, p. 782)

Despite the pioneering work of Helen Bradford Thompson (Wooley) and Leta Stetter Hollingworth, these sorts of myths persisted, and have been the foundation of many mentalistic treatments of supposed inherent gender differences.

The examples cited to this point have largely been historical. Yet, we have only to look at contemporary psychology to see treatments of brain function that seek to localize specific modular "cognitive abilities" in certain regions of the brain. Cognitive

neuroscience specializes in such treatments, or "chasing ghosts with Geiger counters" as Faux (2002) has wonderfully put it. Executive functions are in the prefrontal cortex; speech centers are over here, in this hemisphere or lobe; face recognition centers are over there; spatial imagery centers are up here; creative thought is down there; logic and analytic ability are in between and slightly to the left; poetry is up and to the right; memories below them in the amygdala or hippocampus; and so on. Suffice it to say that the factual basis for such claims is clearly suspect (Faux, 2002).

Implications of the Traditional View

As seen in the passages from Brigham (1923) and Yerkes (1923) cited above, attributions about intelligence as a mental power or ability parallel the various dispositional attributions about behavior. An implication of a mentalistic view of intelligence is that it is acceptable to treat others prejudicially because they are not worthy of any other kind of treatment. If they aren't smart enough, it must be because they lack the genetic or other dispositional characteristics to ever be smart enough. Accordingly, why bother to invest in them by giving them a decent education, job, housing, or medical care? Why cast pearls before swine?

For present purposes, are we obliged to assume that if some women do not perform certain tasks as well as some men, it must be because the neurons of these women are defective, and all women should therefore be kept barefoot and pregnant in the kitchen? Are we obliged to assume that if some members of Group B do not perform certain tasks as well as some members of Group A, it must be because the neurons of all members of Group B are defective, and they should be denied reinforcers? To so approach these questions is the height of mentalism, and to be a behavior analyst is to be opposed to mentalism.

Behavior Analysis As a Constructional Alternative

On a behavior-analytic view, intelligence is yet another mentalistic contiguous cause, a fanciful explanatory fiction that is cherished for irrelevant and extraneous reasons. Our verbal practices and cultural assumptions lead us to say a person does something intelligently, then does something that shows intelligence, and finally that the person has intelligence. What started as an adverb becomes a noun, and people go off looking in another dimension for the thing the noun is said to represent.

Clearly, questions about intelligence are questions about (a) the presence and absence of certain forms of stimulus control and (b) organizations of repertoires. People do differ, just as other organisms differ. For example, they have different genetic endowments that underlie different sensitivities to environmental stimulation. The point is that contingencies give rise to structure within and between aspects of repertoires, and on a behavior-analytic view there is no justification for inferring that any resulting structure within and between repertoires is the result of a monolithic causal entity in another dimension. Certainly some life experiences add or detract in specific or generalized ways to the development of stimulus control and the organization of repertoires, but culturally based mentalistic assumptions only interfere with constructional therapeutic or rehabilitative intervention (see Goldiamond, 1975). Behavior analysis does understand that repertoires obviously differ among individuals and that the repertoires of some individuals are well less than optimal. No doubt that on average the repertoires of those in the higher socioeconomic classes or who earn higher annual incomes are more developed in a descriptive sense than those in lower classes or who earn lower incomes. However, behavior analysis advocates socially constructional intervention to prevent deficient

repertoires in the first place or rehabilitate them if they already exist. It rejects statements that give license to discriminatory treatment of the individual on the basis of some presumed dispositional quality or entity that is thought to cause the deficient repertoires. Again, it seems unlikely that the appropriate interventions will be as robust as they need to be, and that we will progress down the path of social justice, if we continue to appeal to traditional, mentalistic definitions of intelligence (cf. Herrnstein & Murray, 1994).

To be sure, certain bodily activities are accomplished by some anatomical structures and not others. Persons who experience strokes or other forms of brain injuries may not be able to perform certain classes of responses, such as those on intelligence tests, by virtue of the localized damage they sustain to those structures. The point is that we (our nervous systems) are changed by the contingencies we experience, and we (our nervous systems) "store" these changes. Well, we (our nervous systems) must store them somewhere and somehow. If these stored changes are selectively altered or otherwise disrupted, the behavior mediated by this underlying physiology may well be selectively altered or disrupted. Researchers can knock out genes in laboratory animals and inhibit protein synthesis, so that the experiences do not actually "change" the nervous system of the animals in a way that the changes are stored. However, all of this is a long way from the mentalistic storage and retrieval metaphors so uncritically taken from folk psychology and institutionalized in contemporary traditional psychology.

In addition, the 23rd pair of chromosomes in the cells of males presumably has an XY configuration, and this configuration differs from the XX configuration of females. The resulting balance of male and female sexual hormones in the bodies of these males means their hypothalamus and no doubt other regions of their brains dif-

fer from those females. Presumably, those males will also react in different ways to some stimuli than do females.

Again, none of this implies that there is an underlying "cognitive ability" that resides in one or another brain region, operated by one or another homunculus; that this mental or cognitive ability is genetically determined; or that this approach of traditional, mentalistic folk psychology to the question of human behavior is in any way reasonable. As Skinner (1974) put it, "The behavioral account . . . sets the task for the physiologist. Mentalism, on the other hand, has done a great disservice by leading physiologists on false trails in search of the neural correlates of images, memories, consciousness, and so on" (p. 217).

The Pygmalion Effect

Relevant to the present discussion are studies on the "Pygmalion effect" by Rosenthal and Jacobson (1968). These studies examined how teachers' "expectations" influenced their behavior toward children. In these studies, children in an elementary school were given a nonverbal intelligence test supposedly designed to predict academic blooming or intellectual gain. For a randomly selected 20% of the students, something like a deception was in effect, such that their teachers were told that the test indicated the students would show unusual intellectual gains during the academic year. Eight months later, the children were retested. The 20% of the children who were selected at random did show a significantly greater gain on the test than did the children in a control group. Presumably, the teachers translated their expectations into behavior that led the students to do better. Indeed, follow-up studies by Meichenbaum, Bowers, and Ross (1968) and Rubovits and Maehr (1973) showed that students benefit when their teachers increase their positive interactions and praise students more than another group of students serving as controls. The point is, why

can't all students be treated like those in the experimental group so that all students can show gains? Yet, a legitimate question is whether these constructional interventions will even be contemplated if one is committed to the view that intelligence is largely some kind of an innate mental characteristic that is normally distributed within a population and one can do very little about who ends up with how much in the distribution.

SUMMARY AND CONCLUSIONS

In conclusion, we note that toward the end of the 19th century, John Stuart Mill suggested that "Of all the vulgar modes of escaping from the consideration of the effect of social and moral influences upon the human mind, the most vulgar is that of attributing the diversities of conduct and character to inherent natural differences" (as cited in Gould, 1977, p. 247). Now, more than 100 years later, a reasonable question is whether much has changed. Unfortunately, perhaps even tragically, it appears not. Even the most casual inspection reveals traditional psychology has uncritically institutionalized the mentalism of inner causes that comes from folk psychology. Such mentalisms as found in dispositional attributions and conventional conceptions of intelligence have led us to the pernicious social -isms of racism and sexism. These views interfere with bringing all members of society into contact with effective, constructional interventions on the path to social justice. Indeed, there is no assurance that our culture as a whole can progress far or effectively down the path of social justice without ridding itself of mentalism, and it is not clear that traditional psychology is up to the task.

However, for our society to progress most effectively down the path of social justice, behavior analysts must also understand clearly what mentalism is, what problems it creates, and how behavior analysis represents an alterna-

tive, so that we ourselves do not contribute to those problems. This requirement applies to all aspects of our activity, but especially to the scientific behavior we call theorizing and explaining. For example, if we cannot analyze our own behavior as scientists—our theorizing and explaining—without an implicit commitment to mentalism and epistemological dualism, what chance do we have of getting others to analyze in a nonmentalistic way any kind of behavior? Day (1969) raised this matter some years ago:

Strange blends of Skinner and conventional behaviorism abound. . . . Mentalism among Skinnerians is rampant. . . . I have taken the liberty of speaking here directly to some of those who preach most loudly a supposedly Skinnerian line. One hardly knows where to begin to analyze the grossly uninformed verbal material that is generated concerning Skinner's work by the typical psychologist. (pp. 326–327)

Let us be clear: Our uncritical talk about scientific epistemology (and we should not forget that Skinner came to behaviorism because of its bearing on epistemology; Skinner, 1978, p. 124) is a factor that contributes directly to the maintenance of mentalism, and if it is contributing to mentalism, it is contributing indirectly to racism and sexism. Presumably, much of the activity called mentalistic is supported in one way or another by social reinforcement, rather than because it yields more effective prediction and control of behavior. The good news is that if mentalism is just a product of social reinforcement, then presumably we can provide social reinforcement for non-mentalism, and mentalism will be extinguished. That state of affairs will ultimately leave us in a better position to go out and actually do the better science that enhances the welfare of humanity.

Consider once again some words from Skinner:

Do I mean to say that Plato never discovered the mind? Or that Aquinas, Descartes, Locke, and Kant were preoccupied with incidental, often irrelevant by-products of human behavior? Or that the mental laws of physiological psychologists like Wundt, or the stream of consciousness of

William James, or the mental apparatus of Sigmund Freud have no useful place in the understanding of human behavior? Yes, I do. And I put the matter strongly because, if we are to solve the problems that face us in the world today, this concern for mental life must no longer divert our attention from the environmental conditions of which human behavior is a function. (1978, p. 51)

Clearly, an authentically scientific view of human nature offers exciting possibilities for humans to achieve their full potential. We have not yet seen what we can make of ourselves, perhaps because behavioral science is not yet behavioristic enough (Skinner, 1971, p. 215; 1974, p. 257). In principle, as behavioral science does become more behavioristic, we can learn more about making ourselves better readers, writers, citizens, and parents. We can learn more about preventing and rehabilitating inadequate repertoires. We can learn more about conserving our natural resources, maintaining the integrity of the environment, managing population growth, developing our economies in sustainable ways, preserving the dignity of human capital, and allocating resources to human needs instead of weapons of mass destruction. Given such a rich view of human nature, the prospects that all members of our society can walk together on the path to social justice are promising indeed.

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